

State of Colorado  
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:  
403694860

Receive Date:

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Report taken by:

**Site Investigation and Remediation Workplan (Supplemental Form)**

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27.

This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

**OPERATOR INFORMATION**

Name of Operator: <u>PDC ENERGY INC</u>	Operator No: <u>69175</u>	<b>Phone Numbers</b>
Address: <u>1099 18TH STREET SUITE 1500</u>		Phone: <u>(303) 860-5800</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>( )</u>
Contact Person: <u>Karen Olson</u>	Email: <u>taspillremediationcontractor@pdce.com</u>	

**PROJECT, PURPOSE & SITE INFORMATION**

**PROJECT INFORMATION**

Remediation Project #: 15357 Initial Form 27 Document #: 402354435

**PURPOSE INFORMATION**

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: \_\_\_\_\_

**SITE INFORMATION**

No  Multiple Facilities

Facility Type: <u>LOCATION</u>	Facility ID: <u>331861</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>BOOTH-67N65W 35SESE</u>	Latitude: <u>40.524360</u>	Longitude: <u>-104.622280</u>	
	** correct Lat/Long if needed: Latitude: <u>40.524172</u>	Longitude: <u>-104.620833</u>	
QtrQtr: <u>SESE</u>	Sec: <u>35</u>	Twps: <u>7N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

**SITE CONDITIONS**

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Agriculture

Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? No

**Other Potential Receptors within 1/4 mile**

Occupied buildings are located approximately 733 feet southeast of the location. FWS Wetlands are located approximately 153 feet northeast of the location. There are no CPW Sensitive Wildlife Habitats identified within a 1/4-mile radius.

**SITE INVESTIGATION PLAN**

**TYPE OF WASTE:**

- E&P Waste**       **Other E&P Waste**       **Non-E&P Waste**
- Produced Water**       **Workover Fluids** \_\_\_\_\_
- Oil**       **Tank Bottoms**
- Condensate**       **Pigging Waste**
- Drilling Fluids**       **Rig Wash**
- Drill Cuttings**       **Spent Filters**
- Pit Bottoms**
- Other (as described by EPA)** \_\_\_\_\_

**DESCRIPTION OF IMPACT**

Impacted?	Impacted Media	Extent of Impact	How Determined
No	SOILS	Refer to Figure 1 and Table 1.	Confirmation Soil Sampling

**INITIAL ACTION SUMMARY**

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

In accordance with COGCC Rule 905.b, confirmation samples will be collected below the buried or partially buried produced water vessel during decommissioning or relocation activities.

**PROPOSED SAMPLING PLAN**

**Proposed Soil Sampling**

Will soil samples be collected as part of this investigation? ( Number, type (grab/composite), analyses, and locations of samples ):

Soil encountered below the produced water vessel will be field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). In addition, visual and olfactory observations of the soil will be documented. A confirmation soil sample will be collected below the vessel and submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by EPA Method 8260B, TPH – diesel range organics (DRO) by EPA Method 8015, pH by EPA Method 9045D, and electrical conductivity (EC) by EPA Method 120.1. If groundwater is encountered below the vessel, a soil sample will be collected from the unsaturated interval and submitted for laboratory analysis of the above-stated compounds.

**Proposed Groundwater Sampling**

Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

If groundwater is encountered below the vessel, a groundwater sample will be collected and submitted for laboratory analysis of BTEX by EPA Method 8260B.

**Proposed Surface Water Sampling**

Will surface water samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

\_\_\_\_\_

**Additional Investigative Actions**

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

\_\_\_\_\_

**SITE INVESTIGATION REPORT**

## **SAMPLE SUMMARY**

### **Soil**

Number of soil samples collected 1  
Number of soil samples exceeding 915-1 0  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 100

### **NA / ND**

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
NA Highest concentration of SAR \_\_\_\_\_  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 6

### **Groundwater**

Number of groundwater samples collected 0  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) \_\_\_\_\_  
Number of groundwater monitoring wells installed \_\_\_\_\_  
Number of groundwater samples exceeding 915-1 \_\_\_\_\_

\_\_\_\_\_ Highest concentration of Benzene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ Highest concentration of Toluene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ Highest concentration of Xylene (µg/l) \_\_\_\_\_  
\_\_\_\_\_ Highest concentration of Methane (mg/l) \_\_\_\_\_

### **Surface Water**

0 Number of surface water samples collected  
0 Number of surface water samples exceeding 915-1  
If surface water is impacted, other agency notification may be required.

## **OTHER INVESTIGATION INFORMATION**

Were impacts to adjacent property or offsite impacts identified?

Were background samples collected as part of this site investigation?

Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) \_\_\_\_\_ Volume of liquid waste (barrels) \_\_\_\_\_

Is further site investigation required?

## **REMEDIAL ACTION PLAN**

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No

### **SOURCE REMOVAL SUMMARY**

Describe how source is to be removed.

No soil was removed from the location during tank battery closure activities.

### **REMEDIATION SUMMARY**

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

Soil encountered below the produced water vessel was field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID) [Table 2]. One confirmation soil sample (SS01) was collected below the vessel and submitted for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) by EPA Method 8260B, TPH-diesel range organics (DRO) by EPA Method 8015, pH by EPA Method 9045D, and electrical conductivity (EC) by EPA Method 120.1. The sample location and excavation extent are illustrated on Figure 1. Soil analytical results are summarized in Table 1 and VOC concentrations are summarized in Table 2. The laboratory report is included in Attachment A.

### **Soil Remediation Summary**

**In Situ**

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

**Ex Situ**

- \_\_\_\_\_ Excavate and offsite disposal
- \_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_
- \_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_
- \_\_\_\_\_ Excavate and onsite remediation
- \_\_\_\_\_ Land Treatment
- \_\_\_\_\_ Bioremediation (or enhanced bioremediation)
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Other \_\_\_\_\_

**Groundwater Remediation Summary**

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

**GROUNDWATER MONITORING**

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly  Semi-Annually  Annually  Other

### Request Alternative Reporting Schedule:

Semi-Annually  Annually  Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

**Report Type:**  Groundwater Monitoring  Land Treatment Progress Report  O&M Report  
 Other

## Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Operator does not have site-specific financial assurance for this project; however, Operator has inactive well, blanket, and surface bonding including Surety IDs 106077122, 106473808, and 106473820, as well as commercial general liability and/or umbrella/excess insurance meeting the requirements of Rule 705.b. Operator does not anticipate making an insurance claim for this project.

- Facility and infrastructure were decommissioned and the location will be reclaimed in accordance with the ECMC 1000 Series.
- Investigation and delineation has been completed for organics and inorganics.
- The project has been completed and no further assessment or remediation is required at this time.

Operator anticipates the remaining cost for this project to be: \$

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards

E&P waste (solid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

## REMEDIATION COMPLETION REPORT

### REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project?

If YES:

- Compliant with Rule 913.h.(1).  
 Compliant with Rule 913.h.(2).  
 Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards?

Does the previous reply indicate consideration of background concentrations? No

Does Groundwater meet Table 915-1 standards? Yes

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

## RECLAMATION PLAN

### RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

Following excavation activities, the location was backfilled, compacted, and re-contoured to match pre-existing conditions. The location will be reclaimed in accordance with the COGCC 1000 series.

Is the described reclamation complete? Yes

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

Interim  Final

Did the Surface Owner provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

### SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. \_\_\_\_\_

Proposed date of completion of Reclamation. \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. \_\_\_\_\_

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/06/2020

Proposed site investigation commencement. 04/23/2020

Proposed completion of site investigation. 04/23/2020

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/23/2020

Proposed date of completion of Remediation. 04/23/2020

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

\_\_\_\_\_

**OPERATOR COMMENT**

Due to the COA's that were issued for the ECMC Inspection Form 693701104 and subsequent review of the project, the following discrepancies were identified in the Supplemental Form 27 (Document No. 402392241) :

- Incorrect revised Lat/long
- Aerial imagery illustrating incorrect production facility.

Following a review of the project, the third party consultant failed to identify the items listed above during report preparation for the Initial Form 27 and closure reporting for the Supplemental Form 27.

Based on the field notes which are included as an attachment in this form, the correct facility (Booth 43, 44-35 Tank Battery) was sampled on April 23, 2020. The following indicators were used to verify the location on the field notes:

- Site Directions
- Surface Water
- Occupied Building
- Site Sketch

Per the meeting with the ECMC conducted on February 22, 2024, a Supplemental Form 27 was prepared to include the revised figure and field notes. Based on the analytical results described herein and the applicable regulatory standards used during the time of decommissioning and sample collection, PDC is requesting a No Further Action (NFA) determination for this location.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Karen Olson

Title: Remediation Advisor

Submit Date: \_\_\_\_\_

Email: taspillremediationcontractor@pdce.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 15357

**COA Type**

**Description**

COA Type	Description
0 COA	

**Attachment Check List**

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

Att Doc Num	Name
403694898	SOIL SAMPLE LOCATION MAP
403694909	OTHER
403694910	ANALYTICAL RESULTS
403694911	CORRESPONDENCE

Total Attach: 4 Files

**General Comments**

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)



DATE: May 5, 2020

DESIGNED BY: C. Hamlin

DRAWN BY: C. Gessell



**Tasman Geosciences, Inc.**  
 6855 W. 119<sup>th</sup> Ave.  
 Broomfield, CO 80020

**PDC Energy, Inc. – DJ Basin**  
**Former Booth 43, 44-35 Tank Battery**  
 SESE, Section 35, Township 7 North, Range 65 West  
 Weld County, Colorado

EXCAVATION SITE MAP

FIGURE  
1

**TABLE 1  
FORMER BOOTH 43, 44-35 TANK BATTERY  
SOIL ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(2)</sup> (mg/kg)	pH (units)	EC (mmhos/cm)
<b>COGCC Table 910-1 Soil Standard (mg/kg) <sup>(1)</sup></b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>500</b>	<b>6-9</b>	<b>&lt;4</b>
SS01 @ 6'	4/23/2020	6	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	8.58	0.423

**Notes:**

- Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
  - TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.
- COGCC = Colorado Oil and Gas Conservation Commission  
 (<) = Analytical result is less than the indicated laboratory reporting limit.  
 GRO = Total volatile petroleum hydrocarbons - gasoline range organics  
 DRO = Total extractable petroleum hydrocarbons - diesel range organics  
 mg/kg = Milligrams per kilogram  
 ft. = Feet  
 bgs = Below ground surface  
 EC = Electrical conductivity  
 mmhos/cm = millimhos per centimeter

**TABLE 2**  
**FORMER BOOTH 43, 44-35 TANK BATTERY**  
**VOC CONCENTRATIONS SUMMARY TABLE**

Sample ID	Date Sampled	Depth (ft. bgs)	Sample Location <sup>(1)</sup>	Field Measured VOC Concentration <sup>(2)</sup> (ppm)
SS01 @ 6'	4/23/2020	6	Base	0.0
SS02 @ 3'	4/23/2020	3	North Sidewall	0.0
SS03 @ 3'	4/23/2020	3	West Sidewall	0.0
SS04 @ 3'	4/23/2020	3	South Sidewall	0.0
SS05 @ 3'	4/23/2020	3	East Sidewall	0.0

**Notes:**

1. Refers to the sample location within the excavation area below the former produced water vessel.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

ft. = Feet

bgs = Below ground surface

ppm = Parts per million

= Sample submitted for laboratory analysis.

## **ATTACHMENT A**

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

April 29, 2020

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Booth 43, 44-35

Work Order #2004312

Enclosed are the results of analyses for samples received by Summit Scientific on 04/23/20 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized 'M' and 'P'.

Muri Premer For Paul Shrewsbury  
President



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
04/29/20 13:04

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@6'	2004312-01	Soil	04/23/20 09:15	04/23/20 16:10

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

# Summit Scientific

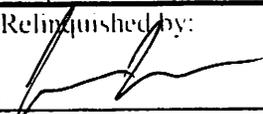
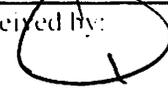
2004312

1653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: PDC / Tasman Project Manager: Mark Longhurst  
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com  
City/State/Zip: Broomfield/ CO/ 80020  
Phone: 303-487-1228 Project Name: Booth 43,44-35  
Sampler Name: Cody Gessell Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested					Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH/EC	
1	SS01 @ 6'	4/23/20	0915	1			X			X			X	X	X		
2	SS02 @ 3'		0920													X	
3	SS03 @ 3'		0925													X	
4	SS04 @ 3'		0930													X	
5	SS05 @ 3'		0935													X	
6																	
7																	
8																	
9																	
10																	

Relinquished by: 	Date/Time: 4/23/20 1210	Received by: <del>Tasman's Lock Box</del> Summit	Date/Time: 4/23/20 1210	<b>Turn Around Time</b> (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: <u>SA</u> Samples Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: Tasman's Lock Box Summit	Date/Time: 04/23/2020 1610	Received by: 	Date/Time: 04/23/2020 1610		
Relinquished by:	Date/Time:	Received by: 	Date/Time:		





PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/29/20 13:04

**SS01@6'**  
**2004312-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **04/23/20 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	2004312	04/24/20	04/28/20	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
Naphthalene	ND	0.010		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **04/23/20 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		91.3 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/23/20 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	2004311	04/24/20	04/28/20	EPA 8015M	

Date Sampled: **04/23/20 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		107 %		30-150		"	"	"	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **04/23/20 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>8.58</b>			pH Units	1	2004303	04/24/20	04/24/20	EPA 9045D	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 04/29/20 13:04

**SS01@6'**  
**2004312-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

**Specific Conductance by EPA Method 120.1**

Date Sampled: **04/23/20 09:15**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	<b>0.423</b>	0.0100		mmhos/cm	1	2004304	04/24/20	04/24/20	EPA 120.1	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/29/20 13:04

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

**Batch 2004312 - EPA 5030 Soil MS**

**Blank (2004312-BLK1)**

Prepared: 04/24/20 Analyzed: 04/27/20

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0350		"	0.0400		87.6	23-173			
Surrogate: Toluene-d8	0.0410		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0423		"	0.0400		106	21-167			

**LCS (2004312-BS1)**

Prepared: 04/24/20 Analyzed: 04/27/20

Benzene	0.0741	0.0020	mg/kg	0.100		74.1	70-130			
Toluene	0.0773	0.0050	"	0.100		77.3	70-130			
Ethylbenzene	0.0740	0.0050	"	0.100		74.0	70-130			
m,p-Xylene	0.143	0.010	"	0.200		71.4	70-130			
o-Xylene	0.0716	0.0050	"	0.100		71.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0347		"	0.0400		86.8	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0409		"	0.0400		102	21-167			

**Matrix Spike (2004312-MS1)**

Source: 2004307-01

Prepared: 04/24/20 Analyzed: 04/27/20

Benzene	0.0780	0.0020	mg/kg	0.100	0.00306	75.0	70-130			
Toluene	0.0782	0.0050	"	0.100	ND	78.2	70-130			
Ethylbenzene	0.0734	0.0050	"	0.100	ND	73.4	70-130			
m,p-Xylene	0.201	0.010	"	0.200	0.00417	98.6	70-130			
o-Xylene	0.0718	0.0050	"	0.100	ND	71.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0367		"	0.0400		91.8	23-173			
Surrogate: Toluene-d8	0.0430		"	0.0400		107	20-170			
Surrogate: 4-Bromofluorobenzene	0.0429		"	0.0400		107	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 04/29/20 13:04

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

**Batch 2004312 - EPA 5030 Soil MS**

**Matrix Spike Dup (2004312-MSD1)**

Source: 2004307-01

Prepared: 04/24/20 Analyzed: 04/27/20

Benzene	0.0732	0.0020	mg/kg	0.100	0.00306	70.2	70-130	6.35	30	
Toluene	0.0778	0.0050	"	0.100	ND	77.8	70-130	0.462	30	
Ethylbenzene	0.0747	0.0050	"	0.100	ND	74.7	70-130	1.70	30	
m,p-Xylene	0.202	0.010	"	0.200	0.00417	99.1	70-130	0.491	30	
o-Xylene	0.0730	0.0050	"	0.100	ND	73.0	70-130	1.70	30	
Surrogate: 1,2-Dichloroethane-d4	0.0339		"	0.0400		84.8	23-173			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0418		"	0.0400		104	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 04/29/20 13:04

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch 2004311 - EPA 3550A**

**Blank (2004311-BLK1)**

Prepared: 04/24/20 Analyzed: 04/27/20

C10-C28 (DRO) ND 50 mg/kg

**LCS (2004311-BS1)**

Prepared: 04/24/20 Analyzed: 04/27/20

C10-C28 (DRO) 457 50 mg/kg 500 91.4 70-130

**Matrix Spike (2004311-MS1)**

**Source: 2004307-01**

Prepared: 04/24/20 Analyzed: 04/27/20

C10-C28 (DRO) 610 50 mg/kg 500 48.0 112 70-130

**Matrix Spike Dup (2004311-MSD1)**

**Source: 2004307-01**

Prepared: 04/24/20 Analyzed: 04/27/20

C10-C28 (DRO) 634 50 mg/kg 500 48.0 117 70-130 3.88 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 04/29/20 13:04

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 2004303 - General Preparation**

**LCS (2004303-BS1)**

Prepared & Analyzed: 04/24/20

pH	9.21	pH Units	9.18	100	95-105
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**Duplicate (2004303-DUP1)**

Source: 2004307-02

Prepared & Analyzed: 04/24/20

pH	8.65	pH Units	8.61	0.463	20
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Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
 04/29/20 13:04

**Specific Conductance by EPA Method 120.1 - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch 2004304 - General Preparation**

**Blank (2004304-BLK1)**

Prepared & Analyzed: 04/24/20

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (2004304-BS1)**

Prepared & Analyzed: 04/24/20

Specific Conductance (EC) 0.791 0.0100 mmhos/cm 0.750 105 90-110

**Duplicate (2004304-DUP1)**

Source: 2004307-02

Prepared & Analyzed: 04/24/20

Specific Conductance (EC) 1.80 0.0100 mmhos/cm 1.84 2.00 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Booth 43, 44-35

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
04/29/20 13:04

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

## Attachment B



4/23/20

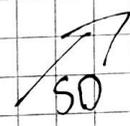
Booth 43,44-35



Irrigation Ditch/Canal

Dirt Road

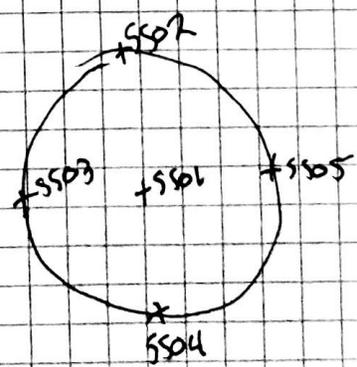
Access



Ag Field

MH

CR 47



Access

Other Equipment Come

## Attachment C

**FORM  
INSP**

Rev  
X/20

**State of Colorado  
Oil and Gas Conservation Commission**

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Inspection Date:

02/07/2024

Submitted Date:

02/13/2024

Document Number:

693701104

**FIELD INSPECTION FORM**

Loc ID 331861 Inspector Name: ALLISON, RICK On-Site Inspection  2A Doc Num: \_\_\_\_\_

**Status Summary:**

- THIS IS A FOLLOW UP INSPECTION
- FOLLOW UP INSPECTION REQUIRED
- NO FOLLOW UP INSPECTION REQUIRED

**Operator Information:**

OGCC Operator Number: 69175  
Name of Operator: PDC ENERGY INC  
Address: 1099 18TH STREET SUITE 1500  
City: DENVER State: CO Zip: 80202

**Findings:**

- 3 Number of Comments
- 1 Number of Corrective Actions
- Corrective Action Response Requested

**ANY CORRECTIVE ACTION(S) FROM PREVIOUS INSPECTIONS THAT HAVE NOT BEEN ADDRESSED ARE STILL APPLICABLE**

**Contact Information:**

Contact Name	Phone	Email	Comment
General, All inspections	(970) 332-3520	cogccinspection@pdce.com	<a href="#">All PDC inspection</a>
Remediation-Spill, PDC		COGCCSpillRemediation@pdce.com	
Waggoner, Kyle		kyle.waggoner@state.co.us	

**Inspected Facilities:**

Facility ID	Type	Status	Status Date	Well Class	API Num	Facility Name	Insp Status
267066	WELL	PA	04/06/2020	OW	123-21411	BOOTH 44-35	EI

**General Comment:**

[ECMC Environmental Inspection related to Remediation Project 15357.](#)

**Inspected Facilities**

Facility ID: 267066 Type: WELL API Number: 123-21411 Status: PA Insp. Status: EI

**Environmental**

**Spill/Remediation:**

Comment: Operator submitted Form 27 Doc# 402354435, Remediation Project 15357 for abandonment of a buried produced water vessel associated with the Booth 44-35 API 05-123-21411. It appears Operator provided incorrect lat/lon for this remediation project, and provided incorrect site maps for soil sampling beneath produced water vessel. Operator's lat/lon plots at the Noble Energy Karleberg State 36-45 (API 05-123-26394) on County Road 74. See Field Inspection Report 693701109.

See also Remediation Project 24998 for Spill 482092.

Documentation included in Field Inspection Report 679602138 and aerial imagery documents produced facilities were located at latitude 40.52409 longitude -104.6208.

Remediation Project 15357 will be unresolved.

Corrective Action:	<p style="color: red;">Submit a Form 27 Supplemental for Remediation Project 15357 that includes the correct lat/lon for the former production facilities, and a plan for investigation of potential impacts at production facility. Include a root cause to address the incorrect reporting of the remediation investigation.</p>	Date: <u>03/08/2024</u>
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Emission Control Burner (ECB): \_\_\_\_\_

Comment:

Pilot: \_\_\_\_\_ Wildlife Protection Devices (fired vessels): \_\_\_\_\_

**Attached Documents**

You can go to COGCC Images (<https://cogcc.state.co.us/weblink/>) and search by document number:

Document Num	Description	URL
403685644	INSPECTION SUBMITTED	<a href="http://ogccweblink.state.co.us/DownloadDocumentPDF.aspx?DocumentId=6427806">http://ogccweblink.state.co.us/DownloadDocumentPDF.aspx?DocumentId=6427806</a>